

# Welcome to the HECIWG FSIO 2006 Workshop

08/21/06  
Washington D.C.

LA-UR-06-4801

Gary Grider of Los Alamos  
for the HECIWG

Safety and Security first!

Know your exits!  
Be safe!

Do not tell us anything that cant be  
globally shared!

# Some Initial Workshop Thanks

- Administration and planning: Peggy, Quella, and Wynona
- Scribing: Peggy and Tina
- Speakers and Chairs
- DOE NNSA for \$
- DOE Office of Science for leading the HEC

# Administrivia

- Presentations: get them to Wynonna back corner of room
- Power
- Wireless in theatre
  - linksys, there may be others
  - Web password ZRRD
- The little colored cards

# HECIWG FSIO 2005

- We concentrated on listing, categorizing, and prioritizing HEC I/O and File Systems R&D needs.
- The '05 workshop outcome can be found at [http://www.nitrd.gov/subcommittee/hec/workshop/20050816\\_storage/](http://www.nitrd.gov/subcommittee/hec/workshop/20050816_storage/) and the workshop document can be found at <http://public.lanl.gov/ggrider/HEC-IWG-FS-IO-Workshop-Document-05.pdf>
- The categories of needed research were:
  - Metadata
  - Measurement and Understanding
  - QoS
  - Security
  - Next generation I/O architectures
  - File Systems related communications protocols
  - Management and RAS
  - Archive where it interfaces to file systems
- Additionally, we also discussed other general needs researchers in this area have. These can be summarized as:
  - Direction (provided by the output of the '05 workshop)
  - Funding for research
  - Data from HEC sites to study
    - RAS/failure, usage, performance/traces, benchmarks/pseudo applications)
  - Access to large compute/storage resources for research purposes

# HECIWG FSIO 2006 Goals

- The R&D direction was given by the HECIWG FSIO 2005 materials and subsequent NSF call for R&D (which will be updated with this years information)
- Review how well we did in providing the research needs including
  - Review of the \$11M NSF HECURA I/O and File Systems research awards,
  - Review of the SciDAC2 I/O and File Systems related research awards, and
  - Look for gaps in the funded research including exploring needed breakthroughs.
- Review how well we did in providing other needs including
  - Data, benchmarks and pseudo applications
  - Simulation resources
    - 2007 Incite - Now in its fourth year, the Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program using ORNL/LBNL/PNNL/ANL world class resources
    - NSF infrastructure related funding
    - Find a buddy at a Natl Lab or in a SciDAC2 I/O center or institute
  - Look for gaps and direction in providing these resources
- Review progress on relevant standards
  - HEC enhancements to the POSIX I/O API and
  - pNFS.
- And something new, review curricula at major storage, file system, and I/O university research centers and look for ways to encourage quality, quantity, and focus of educational programs in the HEC I/O and File Systems area. Recall the NSF CS infrastructure work in 1996-1997. See Rising above the Gathering Storm (ISBN: 0309100453).

# What are NOT the goals of this workshop?

- This is NOT an
  - archiving workshop,
  - nor is it a high level data management workshop,
  - nor is it a Grid workshop,
  - however it will touch on those topics as they relate to file systems and middleware.

These areas have their own following
- This is NOT about marketing products or solutions
- This is NOT about marketing your institutions research capabilities
- This is NOT a bragging session to see who has the most bytes or bytes/sec
- This is NOT about current product needs, what you would like to see a product implement, etc.

# Agenda Monday

8:00 AM	8:30 AM	Welcome Review of HECIWG FSIO 05 outcomes Accomplishments for HECIWG FSIO 06 Agenda for the rest of the week	Gary Grider (HECIWG LANL)
8:30 AM	9:00 AM	Intro to HECURA and SciDAC2 FSIO Awards	Lee Ward (Sandia)
9:00 AM	10:00 AM	Technical talks from HECURA/SciDAC2 IO Awards winners	Ellen Salmon (NASA)
10:00 AM	10:15 AM	Break (Coffee and snacks)	
10:15 AM	Noon	Technical talks from HECURA/SciDAC2 IO Awards winners	Evan Felix (PNNL)
Noon		1:00 PM Lunch (provided)	
1:00 PM	3:00 PM	Technical talks from HECURA/SciDAC2 IO Awards winners	Bill Loewe (LLNL)
3:00 PM	3:15 PM	Research and Breakthrough Gaps Break out instructions	Gary Grider
3:15PM	3:30 PM	Break (Coffee, soft drinks and snacks)	
3:30 PM	4:00 PM	Breakout 1 Protocols and 2 Metadata	
4:00 PM	4:30 PM	Breakout 1 Archive and 2 QOS	
4:30 PM	5:00 PM	Breakout 1 RAS and 2 Measure and Understand	
5:00 PM	5:30 PM	Breakout 1 Security and 2 Next Generation I/O Stacks	
5:30 PM		End of HECIWG FSIO Day 1	
5:30 PM	6:00 PM	Breakout 1 and 2 leads write up Gap/Breakthrough presentations	



# Agenda Tuesday

8:00 AM	8:10 AM	Agenda Review	Gary Grider
8:10 AM	8:35 AM	Breakout 1 Gap/Breakthrough brief	Gary Grider
8:35 AM	9:00 AM	Breakout 2 Gap/Breakthrough brief	Rob Ross (ANL)/ Lee Ward (Sandia)
9:00 AM	9:15 AM	HEC POSIX I/O API Extensions update	Rob Ross (ANL)
9:15 AM	9:30 AM	pNFS upate	Brent Welch (Panasas)
9:30 AM	9:45 AM	Data Availability	James Nunez (LANL)
9:45 AM	10:00 AM	Break (Coffee, soft drinks and snacks)	
10:00 AM	10:30 AM	Failure Data Usage Project	Bianca Schroeder (CMU)
10:30 AM	11:00 AM	Trace Data Usage Project	Mike Mesnier (Inte/CMU)
11:00 AM	11:05 AM	Data Availability Breakout Instructions	Gary Grider
11:05 AM	Noon	Breakout 1 Failure/Usage/RAS and 2 Traces/performance	
Noon		1:00 PM Lunch (provided)	
1:00 PM	1:15 PM	IO/Storage Curricula/Center Support Kickoff	Garth Gibson (CMU)
1:15 PM	1:35 PM	CMU (PDL)	Greg Ganger (CMU)
1:35 PM	1:55 PM	Wisconsin	Remzi Arpaci-Dusseau (Wisc)
1:55 PM	2:15 PM	Minnesota (DTC/ISC)	David Du (Minnesota)
2:15 PM	2:35 PM	UCSC (SSRC)	Scott Brandt (UCSC)
2:55 PM	3:00 PM	Curricula Breakout Instructions	Gary Grider
3:00 PM	4:00 PM	Breakout 1 Curricula needs and 2 Other Center Support Needs	
4:00 PM	4:30 PM	Data Availability Breakout brief	James Nunez (LANL)
4:30 PM	5:00 PM	Curricula/Center Support Breakout brief	John Bent (LANL)
5:00 PM	5:15 PM	Wrap up and thank you	Gary Grider
5:15 PM		End of HECIWG FSIO	
5:30 PM	6:30 PM	HECIWG FSIO reporting/planning (for HECIWG FSIO coordinators)	Gary Grider